

**IN THE CLAIMS:**

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (previously amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1, 2, 4, 6, 8, 10, 12, 13, 15, 18, 20-22, 25, 27-39, 43, 44, 47, 51, 54, 58-60, 62, 64, 66, 68, 72, 73, 76, 78, 80, 83 and 86-88 in accordance with the following:

1. (previously amended) A connection admission control method for a packet-based switching system, comprising :
  - assigning equivalent bandwidths to variable speed connections;
  - increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;
  - adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator; and
  - determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections.
2. (previously amended) A connection admission control method for a packet-based switching system, comprising:
  - assigning equivalent bandwidths to variable speed connections;
  - increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;
  - adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator;
  - determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections; and
  - increasing or reducing the bandwidth available to variable speed connections by a variable speed traffic factor; and
  - adjusting the variable speed traffic factor, the adjustment being made by a switch operator.

3. (previously amended) A connection admission control method according to claim 2, wherein the scaling factor and the variable speed traffic factor are adjusted while the packet-based switching system is online.

4. (previously amended) A connection admission control method according to claim 1, wherein the connection admission control method determines whether to accept or refuse new constant speed connections and new variable speed connections, the method further comprising :

- summing existing and new constant speed connections;
- if the sum for existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections; and
- adjusting the maximum factor, the adjustment being made by a switch operator.

5. (previously amended) A connection admission control method according to claim 4, further comprising the step of:

- determining whether to accept or refuse new constant speed connections based on whether the sum of existing and new constant speed connections exceeds the bandwidth available to constant speed connections.

6. (previously amended) A connection admission control method for a packet-based switching system, comprising:

- assigning equivalent bandwidths to variable speed connections;
- increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;
- adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator; and
- determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections

wherein the connection admission control method determines whether to accept or refuse new constant speed connections and new variable speed connections, the method further comprising :

- summing existing and new constant speed connections;

if the sum for existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections; and

adjusting the maximum factor, the adjustment being made by a switch operator,

wherein the bandwidth available to constant speed connections is reduced by a constant speed traffic factor if the sum of bandwidths for existing and new constant speed connections exceeds the maximum factor, the method further comprising the step of adjusting the constant speed traffic parameter, the adjustment being made by a switch operator.

7. (original) A connection admission control method according to claim 6, wherein the scaling factor, the maximum factor and the constant speed traffic factor are adjusted while the packet-based switching system is online.

8. (previously amended) A connection admission control method for a packet-based switching system, comprising:

assigning equivalent bandwidths to variable speed connections;

increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;

adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator; and

determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections,

wherein the connection admission control method determines whether to accept or refuse new unspecified connections and new variable speed connections, at least a portion of the unspecified connections not having a sustained cell rate, the sustained cell rate being determined based on an SCR factor, the method further comprising the step of adjusting the SCR factor, the adjustment being made by a switch operator.

9. (original) A connection admission control method according to claim 8, wherein the sustained cell rate for unspecified connections is determined by multiplying a peak cell rate by the SCR factor.

10. (previously amended) A connection admission control method according to claim 8, further comprising :

assigning equivalent bandwidths to unspecified connections;  
increasing or reducing the equivalent bandwidths of the unspecified connections by the scaling factor to achieve assigned bandwidths; and  
determining whether to accept or refuse new unspecified connections based on whether the sum of assigned bandwidths for existing and new unspecified connections exceeds a bandwidth available to unspecified connections.

11. (original) A connection admission control method according to claim 10, wherein the scaling factor and the SCR factor are adjusted while the packet-based switch is online.

12. (previously amended) A connection admission control method for a packet-based switching system, comprising:  
assigning equivalent bandwidths to variable speed connections;  
increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;  
adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator;  
determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections;  
maintaining an original scaling factor for all existing variable speed connections;  
using a new scaling factor to allocate bandwidth for all new variable speed connections;  
and  
when an existing variable speed connection is terminated, freeing an assigned bandwidth determined by the original scaling factor and reallocating freed bandwidth based on the new scaling factor.

13. (previously amended) A connection admission control method according to claim 2, wherein the connection admission control method determines whether to accept or refuse new constant speed connections and new variable speed connections, the method further comprising :  
summing existing and new constant speed connections;  
if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections by a constant speed traffic factor;

and

adjusting the constant speed traffic factor, the adjustment being made by a switch operator.

14. (previously presented) A connection admission control method according to claim 2, wherein

adjusting the scaling factor and the variable speed traffic factor causes different scaling factors and variable speed traffic factors to be used when different variable speed connections are evaluated for acceptance,

the packet-based switching system stores the scaling factors and variable speed traffic factors used when existing constant speed connections were accepted, and

a new variable speed connection is accepted if the following equation is satisfied:

$$EBW_1 \cdot \beta_1 / \rho_{VBR,1} + EBW_2 \cdot \beta_2 / \rho_{VBR,2} + EBW_3 \cdot \beta_3 / \rho_{VBR,3} \dots + EBW_n \cdot \beta_n / \rho_{VBR,n} \leq TBW_{VBR} \quad (4)$$

where one of  $EBW_1$  to  $EBW_n$  is the nominal equivalent bandwidth for the new variable speed connection, the others of  $EBW_1$  to  $EBW_n$  are the nominal equivalent bandwidths for existing variable speed connections, one of  $\beta_1$  to  $\beta_n$  is the scaling factor used when equation (4) is evaluated, the others of one of  $\beta_1$  to  $\beta_n$  are the scaling factors used when the existing variable speed connections were accepted, one of  $\rho_{VBR,1}$  to  $\rho_{VBR,n}$  is the variable speed traffic factor used when equation (4) is evaluated, the others of  $\rho_{VBR,1}$  to  $\rho_{VBR,n}$  are the variable speed traffic factors used when existing variable speed connections were accepted, and  $TBW_{VBR}$  is the bandwidth available to variable speed connections.

15. (previously amended) A connection admission control method for a packet-based switching system, comprising :

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections; and

adjusting the maximum factor, the adjustment being made by a switch operator.

16. (previously presented) A connection admission control method according to claim 15, wherein the maximum factor is adjusted while the packet-based switch is online.

17. (previously presented) A connection admission control method according to claim 15, further comprising the step of:

determining whether to accept or refuse new constant speed connections based on whether the sum of existing and new constant speed connections exceeds the bandwidth available to constant speed connections.

18. (previously amended) A connection admission control method for a packet-based switching system, comprising :

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections by a constant speed traffic factor; and

adjusting the constant speed traffic factor, the adjustment being made by a switch operator.

19. (previously presented) A connection admission control method according to claim 18, wherein the constant speed factor is adjusted while the packet-based switch is online.

20. (previously amended) A connection admission control method according to claim 18, further comprising the step of adjusting the maximum factor, the adjustment being made by a switch operator.

21. (previously amended) A connection admission control method for a packet-based switching system, comprising:

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections by a constant speed traffic factor; and

adjusting the constant speed traffic factor

wherein

adjusting the constant speed traffic factor causes different constant speed traffic factors to be used when different constant speed connections are evaluated for acceptance,

the packet-based switching system stores the constant speed traffic factors used when existing constant speed connections were accepted, and

a new constant speed connection is accepted if the following equation is satisfied:

$$CBR_1/\rho_{CBR,1} + CBR_2/\rho_{CBR,2} + CBR_3/\rho_{CBR,3} \dots + \dots CBR_n/\rho_{CBR,n} \leq TBW_{CBR} \quad (2)$$

where one of  $CBR_1$  to  $CBR_n$  is the nominal bit rate of the new constant speed connection, the others of  $CBR_1$  to  $CBR_n$  are the nominal bit rates of the existing constant speed connections, one of  $\rho_{CBR,1}$  to  $\rho_{CBR,n}$  is the constant speed traffic factor used when equation (2) is evaluated, the others of  $\rho_{CBR,1}$  to  $\rho_{CBR,n}$  are the constant speed traffic factor used when existing constant speed connections were accepted, and  $TBW_{CBR}$  is the bandwidth available to constant speed connections.

22. (previously amended) A connection admission control method for a packet-based switching system, comprising :

determining sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor, and

adjusting the SCR factor, the adjustment being made by a switch operator.

23. (previously presented) A connection admission control method according to claim 22, wherein the sustained cell rate for unspecified connections is determined by multiplying a peak cell rate by the SCR factor.

24. (previously presented) A connection admission control method according to claim 22, wherein the SCR factor is adjusted while the packet-based switch is online.

25. (previously amended) A connection admission control method for a packet-based switching system, comprising:

determining sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor;

adjusting the SCR factor, the adjustment being made by a switch operator;

assigning equivalent bandwidths to unspecified connections;

increasing or decreasing the equivalent bandwidths of the unspecified connections by a scaling factor to achieve assigned bandwidths; and

determining whether to accept or refuse new unspecified connections based on whether the sum of assigned bandwidths for existing and new unspecified connections exceeds a bandwidth available to unspecified connections.

26. (previously presented) A connection admission control method according to claim 25, wherein the scaling factor and the SCR factor are adjusted while the packet-based switch is

online.

27. (previously amended) A connection admission control method according to claim 25, further comprising the step of adjusting the scaling factor, the adjustment being made by a switch operator, wherein:

adjusting the scaling factor causes different scaling factors to be used when different unspecified connections are evaluated for acceptance,

the packet-based switching system stores the scaling factors used when existing unspecified connections were accepted, and

a new unspecified speed connection is accepted if the following equation is satisfied:

$$EBW_1 \cdot \beta_1 + EBW_2 \cdot \beta_2 + EBW_3 \cdot \beta_3 \dots + EBW_n \cdot \beta_n \leq TBW_{UBR} \quad (3)$$

where one of  $EBW_1$  to  $EBW_n$  is the nominal equivalent bandwidth for the new unspecified connection, the others of  $EBW_1$  to  $EBW_n$  are the nominal equivalent bandwidths for existing unspecified connections, one of  $\beta_1$  to  $\beta_n$  is the scaling factor used when equation (3) is evaluated, the others of one of  $\beta_1$  to  $\beta_n$  are the scaling factors used when the existing unspecified connections were accepted, and  $TBW_{UBR}$  is the bandwidth available to unspecified connections.

28. (previously amended) A connection admission control method according to claim 22, further comprising :

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections; and

adjusting the maximum factor, the adjustment being made by a switch operator.

29. (previously amended) A connection admission control method for a packet-based switching system, comprising:

determining sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor;

adjusting the SCR factor, the adjustment being made by a switch operator;

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections by a constant speed traffic factor; and



adjusting the constant speed traffic factor, the adjustment being made by a switch operator.

30. (previously amended) A connection admission control device for a packet-based switching system, comprising:

an EBW device to assign equivalent bandwidths to variable speed connections;

a scaling unit to increase or reduce the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth, the scaling factor being adjustable to change the assigned bandwidths, the adjustment being made by a switch operator; and

an admission control device to determine whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections.

31. (previously amended) A connection admission control device for a packet-based switching system, comprising:

an EBW device to assign equivalent bandwidths to variable speed connections;

a scaling unit to increase or reduce the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth, the scaling factor being adjustable to change the assigned bandwidths, the adjustment being made by a switch operator;

an admission control device to determine whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections; and

a variable traffic unit to increase or reduce the bandwidth available to variable speed connections by a variable speed traffic factor, the variable speed traffic factor being adjustable.

32. (previously amended) A connection admission control device according to claim 31, wherein the scaling factor and the variable speed traffic factor are adjustable while the packet-based switching system is online.

33. (previously presented) A connection admission control device according to claim 31, wherein the admission unit determines whether to accept or refuse new constant speed

connections and new variable speed connections, the device further comprising:

a summing device to sum existing and new constant speed connections such that if the sum of existing and new constant speed connections exceeds a maximum factor, a bandwidth available to constant speed connections is reduced by a constant speed traffic factor, the constant speed traffic factor being adjustable.

34. (previously presented) A connection admission control device according to claim 31, wherein

adjusting the scaling factor and the variable speed traffic factor causes different scaling factors and variable speed traffic factors to be used when different variable speed connections are evaluated for acceptance,

the packet-based switching system stores the scaling factors and variable speed traffic factors used when existing constant speed connections were accepted, and

the admission unit accepts a new variable speed connection if the following equation is satisfied:

$$EBW_1 \cdot \beta_1 / \rho_{VBR,1} + EBW_2 \cdot \beta_2 / \rho_{VBR,2} + EBW_3 \cdot \beta_3 / \rho_{VBR,3} \dots + EBW_n \cdot \beta_n / \rho_{VBR,n} \leq TBW_{VBR} \quad (4)$$

where one of  $EBW_1$  to  $EBW_n$  is the nominal equivalent bandwidth for the new variable speed connection, the others of  $EBW_1$  to  $EBW_n$  are the nominal equivalent bandwidths for existing variable speed connections, one of  $\beta_1$  to  $\beta_n$  is the scaling factor used when equation (4) is evaluated, the others of one of  $\beta_1$  to  $\beta_n$  are the scaling factors used when the existing variable speed connections were accepted, one of  $\rho_{VBR,1}$  to  $\rho_{VBR,n}$  is the variable speed traffic factor used when equation (4) is evaluated, the others of  $\rho_{VBR,1}$  to  $\rho_{VBR,n}$  are the variable speed traffic factors used when existing variable speed connections were accepted, and  $TBW_{VBR}$  is the bandwidth available to variable speed connections.

35. (previously presented) A connection admission control device according to claim 30, wherein the admission unit determines whether to accept or refuse new constant speed connections and new variable speed connections, the device further comprising:

a summing device to sum existing and new constant speed connections such that if the sum for existing and new constant speed connections exceeds a maximum factor, a bandwidth available to constant speed connection is reduced, the maximum factor being adjustable.

36. (previously presented) A connection admission control device according to claim 35, wherein the admission unit determines whether to accept or refuse new constant speed

connections based on whether the sum of existing and new constant speed connections exceeds the bandwidth available to constant speed connections.

37. (previously amended) A connection admission control device for a packet-based switching system, comprising:

- an EBW device to assign equivalent bandwidths to variable speed connections;

- a scaling unit to increase or reduce the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth, the scaling factor being adjustable to change the assigned bandwidths, the adjustment being made by a switch operator; and

- an admission control device to determine whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections

wherein the admission unit determines whether to accept or refuse new constant speed connections and new variable speed connections, the device further comprising:

- a summing device to sum existing and new constant speed connections such that if the sum for existing and new constant speed connections exceeds a maximum factor, a bandwidth available to constant speed connection is reduced, the maximum factor being adjustable

- wherein the bandwidth available to constant speed connections is reduced by a constant speed traffic factor if the sum of bandwidths for existing and new constant speed connections exceeds the maximum factor, the constant speed traffic parameter being adjustable.

38. (previously presented) A connection admission control device according to claim 37, wherein the scaling factor, the maximum factor and the constant speed traffic factor are adjustable while the packet-based switching system is online.

39. (previously amended) A connection admission control device for a packet-based switching system, comprising:

- an EBW device to assign equivalent bandwidths to variable speed connections;

- a scaling unit to increase or reduce the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth, the scaling factor being adjustable to change the assigned bandwidths, the adjustment being made by a switch operator; and

an admission control device to determine whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections

wherein the admission unit determines whether to accept or refuse new unspecified connections and new variable speed connections, at least a portion of the unspecified connections not having a sustained cell rate, the device further comprising an SCR unit to determine the sustained cell rate based on an SCR factor, the SCR factor being adjustable.

40. (previously presented) A connection admission control device according to claim 39, wherein the SCR unit determines the sustained cell rate for unspecified connections by multiplying a peak cell rate by the SCR factor.

41. (previously presented) A connection admission control device according to claim 39, wherein

the device further comprises an EBW device to assign equivalent bandwidths to unspecified connections,

the scaling unit increases or reduces the equivalent bandwidths of the unspecified connections by the scaling factor to achieve assigned bandwidths, and

the admission unit determines whether to accept or refuse new unspecified connections based on whether the sum of assigned bandwidths for existing and new unspecified connections exceeds a bandwidth available to unspecified connections.

42. (previously presented) A connection admission control device according to claim 41, wherein the scaling factor and the SCR factor are adjustable while the packet-based switch is online.

43. (previously amended) A device for a packet-based switching system, comprising:  
an EBW device to assign equivalent bandwidths to variable speed connections;

a scaling unit to increase or reduce the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth, the scaling factor being adjustable to change the assigned bandwidths, the adjustment being made by a switch operator;  
and

an admission control device to determine whether to accept or refuse new variable

speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections,

wherein the admission unit:

maintains an original scaling factor for all existing variable speed connections,

uses a new scaling factor to allocate bandwidth for all new variable speed connections;

and

when an existing variable speed connection is terminated, frees an assigned bandwidth determined by the original scaling factor and reallocating freed bandwidth based on the new scaling factor.

44. (previously amended) A connection admission control device for a packet-based switching system, comprising:

a summing device to sum existing and new constant speed connections; and

a constant traffic controls to reduce a bandwidth available to constant speed connections if the sum of existing and new constant speed connections exceeds a maximum factor, the maximum factor being adjustable, the adjustment being made by a switch operator.

45. (previously presented) A connection admission control device according to claim 44, wherein the maximum factor is adjustable while the packet-based switch is online.

46. (previously presented) A connection admission control device according to claim 44, further comprising:

an admission unit to determine whether to accept or refuse new constant speed connections based on whether the sum of existing and new constant speed connections exceeds the bandwidth available to constant speed connections.

47. (previously amended) A connection admission control device for a packet-based switching system, comprising:

a summing device to sum existing and new constant speed connections; and

a constant traffic unit to reduce a bandwidth available to constant speed connections by a constant speed traffic factor if the sum of existing and new constant speed connections exceeds a maximum factor, the constant speed traffic factor being adjustable, the adjustment being made by a switch operator.

48. (previously presented) A connection admission control device according to claim 47, wherein the constant speed factor is adjustable while the packet-based switch is online.

49. (previously presented) A connection admission control device according to claim 47, wherein the maximum factor is adjustable.

50. (previously amended) A connection admission control device for a packet-based switching system, comprising:

a summing device to sum existing and new constant speed connections; and

a constant traffic unit to reduce a bandwidth available to constant speed connections by a constant speed traffic factor if the sum of existing and new constant speed connections exceeds a maximum factor, the constant speed traffic factor being adjustable

wherein

adjusting the constant speed traffic factor causes different constant speed traffic factors to be used when different constant speed connections are evaluated for acceptance,

the packet-based switching system stores the constant speed traffic factors used when existing constant speed connections were accepted, and

the device further comprises an admission unit to accept a new constant speed connection if the following equation is satisfied:

$$CBR_1/\rho_{CBR,1} + CBR_2/\rho_{CBR,2} + CBR_3/\rho_{CBR,3} \dots + CBR_n/\rho_{CBR,n} \leq TBW_{CBR} \quad (2)$$

where one of  $CBR_1$  to  $CBR_n$  is the nominal bit rate of the new constant speed connection, the others of  $CBR_1$  to  $CBR_n$  are the nominal bit rates of the existing constant speed connections, one of  $\rho_{CBR,1}$  to  $\rho_{CBR,n}$  is the constant speed traffic factor used when equation (2) is evaluated, the others of  $\rho_{CBR,1}$  to  $\rho_{CBR,n}$  are the constant speed traffic factor used when existing constant speed connections were accepted, and  $TBW_{CBR}$  is the bandwidth available to constant speed connections.

51. (previously amended) A connection admission control device for a packet-based switching system, comprising an SCR unit to determine sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor, the SCR factor being adjustable, the adjustment being made by a switch operator.

52. (previously presented) A connection admission control device according to claim 51,

wherein the SCR unit determines the sustained cell rate for unspecified connections by multiplying a peak cell rate by the SCR factor.

53. (previously presented) A connection admission control device according to claim 51, wherein the SCR factor is adjustable while the packet-based switch is online.

54. (previously amended) A connection admission control device for a packet-based switching system, comprising:

an SCR unit to determine sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor, the SCR factor being adjustable, the adjustment being made by a switch operator;

an EBW device to assign equivalent bandwidths to unspecified connections;

a scaling unit to increase or decrease the equivalent bandwidths of the unspecified connections by a scaling factor to achieve assigned bandwidths; and

an admission unit to determine whether to accept or refuse new unspecified connections based on whether the sum of assigned bandwidths for existing and new unspecified connections exceeds a bandwidth available to unspecified connections.

55. (previously presented) A connection admission control device according to claim 54, wherein the scaling factor and the SCR factor are adjustable while the packet-based switch is online.

56. (previously presented) A connection admission control device according to claim 54, further comprising adjusting the scaling factor, wherein:

adjusting the scaling factor causes different scaling factors to be used when different unspecified connections are evaluated for acceptance,

the packet-based switching system stores the scaling factors used when existing unspecified connections were accepted, and

the admission unit accepts a new unspecified speed connection if the following equation is satisfied:

$$EBW_1 \cdot \beta_1 + EBW_2 \cdot \beta_2 + EBW_3 \cdot \beta_3 \dots + EBW_n \cdot \beta_n \leq TBW_{UBR} \quad (3)$$

where one of  $EBW_1$  to  $EBW_n$  is the nominal equivalent bandwidth for the new unspecified connection, the others of  $EBW_1$  to  $EBW_n$  are the nominal equivalent bandwidths for existing unspecified connections, one of  $\beta_1$  to  $\beta_n$  is the scaling factor used when equation (3) is

evaluated, the others of one of  $\beta_1$  to  $\beta_n$  are the scaling factors used when the existing unspecified connections were accepted, and  $TBW_{UBR}$  is the bandwidth available to unspecified connections.

57. (previously presented) A connection admission control device according to claim 51, further comprising:

- a summing device to sum existing and new constant speed connections; and
- a constant traffic unit to reduce a bandwidth available to constant speed connections if the sum of existing and new constant speed connections exceeds a maximum factor, the maximum factor being adjustable.

58. (previously amended) A connection admission control device for a packet-based switching system, comprising:

- an SCR unit to determine sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor, the SCR factor being adjustable, the adjustment being made by a switch operator;
- a summing device to sum existing and new constant speed connections; and
- a constant traffic unit to reduce a bandwidth available to constant speed connections by a constant speed traffic factor if the sum of existing and new constant speed connections exceeds a maximum factor, the constant speed traffic factor being adjustable.

59. (previously amended) A machine-readable medium storing a program to control a packet-based switch to perform a method comprising:

- assigning equivalent bandwidths to variable speed connections;
- increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;
- adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator; and
- determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections.

60. (previously amended) A machine-readable medium storing a program to control a packet-based switch to perform a method comprising:



assigning equivalent bandwidths to variable speed connections;  
increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;  
adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator;  
determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections;  
increasing or reducing the bandwidth available to variable speed connections by a variable speed traffic factor; and  
adjusting the variable speed traffic factor, the adjustment being made by a switch operator.

61. (previously amended) A machine-readable medium according to claim 60, wherein the scaling factor and the variable speed traffic factor are adjusted while the packet-based switching system is online.

62. (previously amended) A machine-readable medium according to claim 60, wherein the connection admission control method determines whether to accept or refuse new constant speed connections and new variable speed connections, the method further comprising:  
summing existing and new constant speed connections;  
if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections by a constant speed traffic factor;  
and  
adjusting the constant speed traffic factor, the adjustment being made by a switch operator.

63. (previously presented) A machine-readable medium according to claim 60, wherein adjusting the scaling factor and the variable speed traffic factor causes different scaling factors and variable speed traffic factors to be used when different variable speed connections are evaluated for acceptance,  
the packet-based switching system stores the scaling factors and variable speed traffic factors used when existing constant speed connections were accepted, and  
a new variable speed connection is accepted if the following equation is satisfied:

$$EBW_1 \cdot \beta_1 / \rho_{VBR,1} + EBW_2 \cdot \beta_2 / \rho_{VBR,2} + EBW_3 \cdot \beta_3 / \rho_{VBR,3} \dots + EBW_n \cdot \beta_n / \rho_{VBR,n} \leq TBW_{VBR} \quad (4)$$

where one of  $EBW_1$  to  $EBW_n$  is the nominal equivalent bandwidth for the new variable speed connection, the others of  $EBW_1$  to  $EBW_n$  are the nominal equivalent bandwidths for existing variable speed connections, one of  $\beta_1$  to  $\beta_n$  is the scaling factor used when equation (4) is evaluated, the others of one of  $\beta_1$  to  $\beta_n$  are the scaling factors used when the existing variable speed connections were accepted, one of  $\rho_{VBR,1}$  to  $\rho_{VBR,n}$  is the variable speed traffic factor used when equation (4) is evaluated, the others of  $\rho_{VBR,1}$  to  $\rho_{VBR,n}$  are the variable speed traffic factors used when existing variable speed connections were accepted, and  $TBW_{VBR}$  is the bandwidth available to variable speed connections.

64. (previously amended) A machine-readable medium according to claim 59, wherein the connection admission control method determines whether to accept or refuse new constant speed connections and new variable speed connections, the method further comprising:

- summing existing and new constant speed connections;
- if the sum for existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections; and
- adjusting the maximum factor, the adjustment being made by a switch operator.

65. (previously presented) A machine-readable medium according to claim 64, the method further comprising:

- determining whether to accept or refuse new constant speed connections based on whether the sum of existing and new constant speed connections exceeds the bandwidth available to constant speed connections.

66. (previously amended) A machine-readable medium storing a program to control a packet-based switch to perform a method comprising:

- assigning equivalent bandwidths to variable speed connections;
- increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;
- adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator; and
- determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections

wherein the connection admission control method determines whether to accept or refuse new constant speed connections and new variable speed connections, the method further comprising:

- summing existing and new constant speed connections;
- if the sum for existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections; and
- adjusting the maximum factor, the adjustment being made by a switch operator

wherein the bandwidth available to constant speed connections is reduced by a constant speed traffic factor if the sum of bandwidths for existing and new constant speed connections exceeds the maximum factor, the method further comprising adjusting the constant speed traffic parameter, the adjustment being made by a switch operator.

67. (previously presented) A machine-readable medium according to claim 66, wherein the scaling factor, the maximum factor and the constant speed traffic factor are adjusted while the packet-based switching system is online.

68. (previously amended) A machine-readable medium storing a program to control a packet-based switch to perform a method comprising:

- assigning equivalent bandwidths to variable speed connections;
- increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;
- adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator; and
- determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections

wherein the connection admission control method determines whether to accept or refuse new unspecified connections and new variable speed connections, at least a portion of the unspecified connections not having a sustained cell rate, the sustained cell rate being determined based on an SCR factor, the method further comprising adjusting the SCR factor, the adjustment being made by a switch operator.

69. (previously presented) A machine-readable medium according to claim 68, wherein the sustained cell rate for unspecified connections is determined by multiplying a peak cell rate

by the SCR factor.

70. (previously presented) A machine-readable medium according to claim 68, the method further comprising:

assigning equivalent bandwidths to unspecified connections;

increasing or reducing the equivalent bandwidths of the unspecified connections by the scaling factor to achieve an assigned bandwidth; and

determining whether to accept or refuse new unspecified connections based on whether the sum of assigned bandwidths for existing and new unspecified connections exceeds a bandwidth available to unspecified connections.

71. (previously presented) A machine-readable medium according to claim 70, wherein the scaling factor and the SCR factor are adjusted while the packet-based switch is online.

72. (previously amended) A machine readable medium storing a program to control a packet-based switch to perform a method comprising:

assigning equivalent bandwidths to variable speed connections;

increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;

adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator;

determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections

maintaining an original scaling factor for all existing variable speed connections;

using a new scaling factor to allocate bandwidth for all new variable speed connections;

and

when an existing variable speed connection is terminated, freeing an assigned bandwidth determined by the original scaling factor and reallocating freed bandwidth based on the new scaling factor.

73. (previously amended) A machine-readable medium storing a program to control a packet-based switch to perform a method comprising:

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections; and  
adjusting the maximum factor, the adjustment being made by a switch operator.

74. (previously presented) A machine-readable medium according to claim 73, wherein the maximum factor is adjusted while the packet-based switch is online.

75. (previously presented) A machine-readable medium according to claim 73, the method further comprising:

determining whether to accept or refuse new constant speed connections based on whether the sum of existing and new constant speed connections exceeds the bandwidth available to constant speed connections.

76. (previously amended) A machine-readable medium for controlling a packet-based switch to perform a method comprising:

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections by a constant speed traffic factor; and

adjusting the constant speed traffic factor, the adjustment being made by a switch operator.

77. (previously presented) A machine-readable medium according to claim 76, wherein the constant speed factor is adjusted while the packet-based switch is online.

78. (previously amended) A machine-readable medium according to claim 76, the method further comprising adjusting the maximum factor, the adjustment being made by a switch operator.

79. (previously amended) A machine-readable medium for controlling a packet-based switch to perform a method comprising:

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections by a constant speed traffic factor;

and

adjusting the constant speed traffic factor

wherein

adjusting the constant speed traffic factor causes different constant speed traffic factors to be used when different constant speed connections are evaluated for acceptance,

the packet-based switching system stores the constant speed traffic factors used when existing constant speed connections were accepted, and

a new constant speed connection is accepted if the following equation is satisfied:

$$CBR_1/\rho_{CBR,1} + CBR_2/\rho_{CBR,2} + CBR_3/\rho_{CBR,3} \dots + \dots CBR_n/\rho_{CBR,n} \leq TBW_{CBR} \quad (2)$$

where one of  $CBR_1$  to  $CBR_n$  is the nominal bit rate of the new constant speed connection, the others of  $CBR_1$  to  $CBR_n$  are the nominal bit rates of the existing constant speed connections, one of  $\rho_{CBR,1}$  to  $\rho_{CBR,n}$  is the constant speed traffic factor used when equation (2) is evaluated, the others of  $\rho_{CBR,1}$  to  $\rho_{CBR,n}$  are the constant speed traffic factor used when existing constant speed connections were accepted, and  $TBW_{CBR}$  is the bandwidth available to constant speed connections.

80. (previously amended) A machine-readable medium storing a program to control a packet-based switch to perform a method comprising:

determining sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor, and

adjusting the SCR factor, the adjustment being made by a switch operator.

81. (previously presented) A machine-readable medium according to claim 80, wherein the sustained cell rate for unspecified connections is determined by multiplying a peak cell rate by the SCR factor.

82. (previously presented) A machine-readable medium according to claim 80, wherein the SCR factor is adjusted while the packet-based switch is online.

83. (previously amended) A machine-readable medium storing a program to control a packet-based switch to perform a method comprising:

determining sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor;

adjusting the SCR factor, the adjustment being made by a switch operator;

assigning equivalent bandwidths to unspecified connections;  
, increasing or decreasing the equivalent bandwidths of the unspecified connections by a scaling factor to achieve assigned bandwidths; and  
determining whether to accept or refuse new unspecified connections based on whether the sum of assigned bandwidths for existing and new unspecified connections exceeds a bandwidth available to unspecified connections.

84. (previously presented) A machine-readable medium according to claim 83, wherein the scaling factor and the SCR factor are adjusted while the packet-based switch is online.

85. (previously presented) A machine-readable medium according to claim 83, the method further comprising adjusting the scaling factor, wherein:

adjusting the scaling factor causes different scaling factors to be used when different unspecified connections are evaluated for acceptance,

the packet-based switching system stores the scaling factors used when existing unspecified connections were accepted, and

a new unspecified speed connection is accepted if the following equation is satisfied:

$$EBW_1 \cdot \beta_1 + EBW_2 \cdot \beta_2 + EBW_3 \cdot \beta_3 \dots + \dots EBW_n \cdot \beta_n \leq TBW_{UBR} \quad (3)$$

where one of  $EBW_1$  to  $EBW_n$  is the nominal equivalent bandwidth for the new unspecified connection, the others of  $EBW_1$  to  $EBW_n$  are the nominal equivalent bandwidths for existing unspecified connections, one of  $\beta_1$  to  $\beta_n$  is the scaling factor used when equation (3) is evaluated, the others of one of  $\beta_1$  to  $\beta_n$  are the scaling factors used when the existing unspecified connections were accepted, and  $TBW_{UBR}$  is the bandwidth available to unspecified connections.

86. (previously amended) A machine-readable medium according to claim 80, the method further comprising:

summing existing and new constant speed connections;

if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections; and

adjusting the maximum factor, the adjustment being made by a switch operator.

87. (previously amended) A machine-readable medium storing a program to control a packet-based switch to perform a method comprising:

determining sustained cell rates for unspecified connections not having a sustained cell rate, based on an SCR factor;  
adjusting the SCR factor, the adjustment being made by a switch operator;  
summing existing and new constant speed connections;  
if the sum of existing and new constant speed connections exceeds a maximum factor, reducing a bandwidth available to constant speed connections by a constant speed traffic factor;  
and  
adjusting the constant speed traffic factor, the adjustment being made by a switch operator.

88. (previously amended) A connection admission control device for a packet-based switching system, comprising:  
means for assigning equivalent bandwidths to variable speed connections;  
means for increasing or reducing the equivalent bandwidths of the variable speed connections by a scaling factor to achieve an assigned bandwidth;  
means for adjusting the scaling factor to change the assigned bandwidths, the adjustment being made by a switch operator; and  
means for determining whether to accept or refuse new variable speed connections based on whether the sum of assigned bandwidths for existing variable speed connections and new variable speed connections exceeds a bandwidth available to variable speed connections.